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JULY, 1936

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Tulip Species—Notes and Pictures

B. Y. MORRISON

The pictures that accompany these brief notes are the result of a certain curiosity to see what tulip species looked like rather than a more proper desire to have them continuously in the garden. Their planting did not represent a fine experiment, conceived in detail and worked out with every intention of a long time program. In fact, if one were forced to the ultimate confession, it should be admitted that the whole affair was a sort of sink-or-swim undertaking with only the careful initial preparation in favor of the tulips. The results, therefore, have no significance except to show that some few of the number can stand almost anything.

Remembering the glass houses in which the Van Tubergen tulip species were grown for their summer ripening and innumerable articles that suggested heat and summer dryness, the warmest possible spot was chosen in this rather shaded garden. The spot was a narrow border at the foot of an evergreen barberry hedge with a slight elevation above a drive and an exposure toward the south. The soil is rather on the heavy side but has been lightened by the addition of both leaf mould and rather coarse sand to a depth of over sixteen inches, so that if there were any possible difficulties in drainage the soil mixture, the grade and the root competition between them would cover the difficulties. As no attempt was made to arrange color schemes, the bulbs were planted in alphabetical order, that simple scheme that always fortifies the use of labels.

It might be easier to follow a

similar arrangement in recording the notes that follow but, on the other hand, it is just as well to know which are first cousins or even approximately related. Such an arrangement, however, is not carried to its ultimate conclusion since some points are still uncertain.

Each year there has been a dwindling in the number of bulbs strong enough to flower so that, after the first year, there has been no complete display. Only a few species have entirely abandoned the place and for these the difficulties of overcrowding may have as much to do as anything else. It has been apparent, however, that no one should decide too quickly that a species is gone because it does not flower the second year after planting since the third or fourth or fifth year may yield a complete surprise.

When the weather is still too cold in March to invite garden dalliance, there is a race between *Tulipa bicolor* and *T. polychroma* as to which will open its flowers first. There have been some garden visitors who seemed to think that it did not matter since neither is as interesting as its picture might suggest. As far as garden purposes go, they can be dismissed by saying that their leaves tend to be grayish greens, their flowers numerous on a variously branched stalk, their colors rather ordinary. When the flowers are closed, as they are except during sunshine, they are scarcely distinguishable from their foliage for the backs of the outer segments are flushed with greenish grays so that one does not suspect

the inner whiteness nor the golden star made by the blotch at the base of each segment.

Allied to these but much later in sequence of bloom is *T. dasystemon*, now *T. tarda*, which is more often met in rock gardens. It is equally floriferous; its flowers are a little larger and somewhat more colorful as the yellow patch on the base of the petals extends far up their length and makes a gay contrast with the white tip.

All three of these species are relatively permanent here and have bloomed year in and year out without further attention.

Flowering very soon thereafter come the bulbs purchased as *T. humilis* and as *T. violacea* and *T. violacea pallida*. The first is a delightful small tulip that flowered once and departed, perhaps disgusted at being overshadowed by a mere crocus. Its shape and form are apparent from the illustration, its relative size can be guessed, but its color must be described as a delightful lavender pink with a clear yellow base. Were it less dear and less transitory, it should be tried again. Much farther down the alphabet comes *T. violacea* not over ten inches tall at its very best and of a strong purplish-magenta. Its form *rosea*, not illustrated, is its counterpart in all save color which is a very trying purplish pink. Each is quite outshone by the variety *pallida*, which shows itself well enough in the picture but has departed in the garden. The color is essentially white, with a rosy-lilac toning at the base and a curiously vague touch of pinkiness about the white.

Of course, by this time, the familiar *Kaufmanniana* has arrived in force. No tulip seems more variable in size, stature or color patterns. In the garden it is fairly persistent and floriferous provided it is not over-

shadowed. If crowded, it departs promptly; if merely shaded, it blooms sparingly. The photograph herewith shows plants located in the full sun and with a preponderance of highly colored forms. The illustration in the issue of April, 1935, shows taller plants growing where they get broken shade.

In the type the ground color is white with a yellow blotch inside at the base and various pencillings, blotches and stains of pink or crimson without. Selections have been made of forms in which there is little color, in which yellow predominates and in which the crimson pinks cover the ground, but a good mixture often yields as satisfactory a color mass as could be had from selections.

Almost as familiar is the slender *Tulipa Clusiana* with its narrow leaves, cherry-stained petals and blue-purple inner bases. Its near twin, *T. stellata*, differs from it chiefly by being somewhat later, slightly taller and marked by a yellow inner star instead of the blue purple. In this garden it is somewhat more permanent and certainly more floriferous in later years.

For no discoverable reason, little attention has been paid to another species *T. chrysantha*, which for pattern and habit may be thought of as a variant of *Clusiana*. Instead of a white ground this has a clear yellow ground and a correspondingly more orange stain on the backs of the outer segments. Here it has been short lived, but one suspects again that the fault lay with the gardening.

From this period to its conclusion the tulip bed was anything but a color symphony, for the brilliant scarlets began to be apparent and, like Oriental poppies in their season, these steal the show from all more delicate flowers.

Perhaps least red of all is *Tulipa praecox*, which would be among those left out of any list for small gardens. It has leaves large enough to suggest a good garden tulip and a tall stem that begins to rise in the world like a Darwin, but the greenish buds do not color well, except on the glowing inner surfaces and the stiff flowers seem small for their stalks. Although the probable progenitor of many races, it need not detain the present day gardener.

Quite different are its neighbors, *T. praestans* and its forms. These show their distinctions at once by the soft pubescence of their wide, light gray-green leaves, their branching stalks that barely overtop the leaves and their brilliant, essentially orange-scarlet flowers.

As can be seen from the photographs, they make thick masses of foliage and carry their flowers similarly. Indeed, there is little to say that marks their differences in print, although in the border they are quite distinct with my personal vote going for Van Tubergen's clon. These are quite permanent but irregularly floriferous from year to year.

Other orange to red tulips of this period are *Eichleri*, *Micheliana*, *Greigii*, *Fosteriana* and its forms for the big species and *linifolia* and *Wilsonae* for the smaller species. There is no photograph of *Eichleri* but it is somewhat like *Micheliana*, taller and less stodgy but with the same dulled patches on the outside of the outer lobes. In full sunlight, the flowers flatten out and betray the black basal marks with their varying halos of clear yellow.

Slightly more orange in color is *Tulipa Greigii*, but that is too familiar for description since its leaves with their parallel lines of purplish-red dots have delighted catalogue mak-

ers from the days of the earliest wood engravings.

All of these, in spite of their flamboyance, are quite eclipsed by *Tulipa Fosteriana* with its immense soft gray-green leaves and its flowers more scarlet than scarlet ever was before or since. Polished and glistening, they open to the sun and show their black basal blotches outlined with zones of clear yellow. All the spring plants that bloom to lavender, pink and rose are utterly outdone by them and one has to consider seriously whether one is to have a garden scene or *Tulipa Fosteriana* set off by the silver grays of artemisias, for even the marble whites of candytuft seem almost too chalky in its company.

Recently a selected form called Mme. Lefabre has been grown but it is scarcely better than the type.

The bulbs have persisted well but have been most irregular in their flowering under the conditions given.

For those gardeners who do want a touch of red, there remain *T. Wilsonae* and *T. linifolia* which are smaller in scale and correspondingly less insistent. The former shows on the edges of the photograph of *T. Whittallii*, with eight inch stems and cup-shaped flowers of deep scarlet. The latter is well illustrated in the photograph which records the very characteristic shape of the widely opened blooms and the slender leaves.

The delightful *T. Batalini* is the counterpart of *linifolia* in almost every way save color, which is a clear pale primrose yellow set off by darker yellow stamens. Both this and *linifolia* have persisted well but flowered very little after the first year.

Two species of relatively less importance for the garden scene on account of their dulled colors are *Hageri* and *Whittallii*. The illustrations show their habit, the slender rather erect

leaves and the flowers with their outer surfaces much duller than the inner surfaces. If one color must be named, they are red tulips, but the red is toned to chestnut brown and one has the feeling that there is a touch of green in it too, the whole recalling some of the colors that are to be found in Breeder tulips, though the flowers in no way suggest that group.

But few species remain of those that made this experiment and they are not related. Rather like a small cottage tulip is the hybrid *Marjoletti* with its pale primrose flowers on slender stems held well above the leaves. These are touched with a dull pinkish red on the lower edges of the segments and as the flowers age this spreads out over the lower part of the petals, as can be seen in the two flowers at the upper right of the illustration. Here, contrary to expectation, this has been a very short-lived bulb.

Presented by Mr. Barron was a small tulip named "Columnella" that has no other history to record save that it flowered and perished, a small version of the old cottage tulip, *Vitellina*.

Tulipa sylvestris had been so long an inhabitant of another border that it was not duplicated in this planting, but Van Tubergen's form from Tabriz proved to be a more slender,

shorter plant with equally delightful scent and flowers of perhaps a trifle paler but no less brilliant a yellow. In habit it is far less inclined to wander and seemingly more inclined to regular annual bloom.

Aside from *Tulipa Sprengeri*, which is very late with very narrow-petalled, dark crimson flowers of uncertain production in later years, the procession is always finished by *T. persica* with its vigorous falcate leaves, often margined with dull red, and its numerous short-stemmed, brilliant yellow flowers. Curiously enough, nearly all the bulbs in this planting showed a tendency towards doubling with extra petals and stamens wholly or partially transformed to petals. Like *tarda* and its allies that began the season, this species does not seem particularly tulip-like, if one thinks of tall-stemmed, chalice-shaped flowers, but, like them, furnishes a valuable addition to the family procession.

More room, more attention to removing aggressive perennials and an annual spray to prevent botrytis might have made possible a better report, at least in regard to annual flowering, but even the haphazard treatment accorded shows that the tulip species are worth the attention of those who like a variety of plants that do not fit the ordinary routine.



Tulipa Batalini



Tulipa bicolor



Tulipa chrysantha



Tulipa Chusiana



Tulipa "Columnella"



Tulipa Fosteriana



Tulipa Hageri



Tulipa humilis



Tulipa Kaufmanniana



Tulipa linifolia



Tulipa "Marjoletti"



Tulipa Micheliana



Tulipa persica

(A semi-double form. See page 160)



Tulipa polychroma



Tulipa praecox



Tulipa praestans



Tulipa praestans (Van Tubergen's variety)



Tulipa praestans, Zwanenburg



Tulipa stellata



Tulipa sylvestris, Tabriz form



Tulipa tarda (formerly *T. dasystemon*)



Tulipa violacea



Tulipa violacea pallida



Tulipa Whittallii

A Visit to the South West Arboretum

HELEN M. FOX

The South West Arboretum is sixty miles east from Phoenix in Arizona and now that more people are going out to the land of crystalline air and brilliant sunshine, undoubtedly an increasing number of garden-minded tourists will stop and visit this place. It summarizes the flora of the whole section. To reach the Arboretum one motors down the Salt River Valley, reclaimed from the desert by irrigation. This valley was fertile long before the coming of the white man and modern scientific ditches, if ditches can be scientific, have been laid out on the same locations as the primitive ones dug by the Indians a thousand years ago. Just beyond the green fields and neat dooryards, the desert extends as far as the eye can see. The road leads straight past the Superstition Mountains, romantic landmarks, where many a man prospecting for gold lost his way and never come back again. The mountains are clothed with cacti, sometimes there will be stretches of the Suwarro, the giant cactus, called *Cereus giganteus*, and again for miles the land will be covered with the grease wood, also called creosote, and *Lerrea tridentata*, a low shrub with small, shiny, dark, evergreen leaves, smelling of a disinfectant. Standing higher are the Mesquite shrubs (*Prosopis glandulosa*) the most useful shrub of the West, being an important fodder plant. Then again there will be ocatillo (*Fouquiera splendens*) standing up in groups, a truly stunning cactus which in March opens a scarlet flower seemingly at each thorn all along its twisted wand-like

stems. There are opuntias, yuccas, the chia (*Salvia columbiariae*), which is so unpalatable that it persists in the desert, the beautiful desert gold (*Cassia armata*), and cholla (*Opuntia fulgida*). In late February and early March the filaree (*Erodium cicutarium*) springs up seemingly out of the dry earth and covers it with green mats dotted with purple flowers. This is the lure for the shepherds and presently they come with their flocks of sheep, the head man riding on his cow pony with picturesque accoutrements of ropes and saddle bags. He wears a wide sombrero and his Spanish appearance is not merely theatrical for he is often a Basque. The under shepherds are either Indians or Mexicans.

The road leaves the valley and begins to climb into the wild-looking mountains. The Arboretum, as is well known, was the former home of the late William Boyce Thompson and the twin houses are situated high up on the mountain like an eagle's nest or a robber's castle, a dramatic and startling effect suggesting all kinds of romantic associations.

At the foot of the hill and along its sides is the Arboretum. A stream runs through the property, most unusual in that part of the world, and adds much to the charm of the place.

Whenever I see a native American plant which is exceptionally handsome and then find I can grow it in my own garden in New York, I get a special thrill, not the sort of thrill given by occasional rare European or Asiatic plants, but the sort of thrill

quite suitable to a middle-aged feminine gardener and an innocuous form of chauvinism. At the Arboretum the first excitement of this kind was caused by drifts and drifts of purple *Brodiaea capitata* growing wild and there were dozens of other attractive natives possible to grow in Eastern gardens.

The dainty lavender *Gilia gilloides* like a low large-flowered gypsophila grew there. The yellow daisy-like *Sideranthus gracilis* was another, and the *Nicotiana attenuata* called coyote tobacco, with small cream-colored flowers. *Pentstemon Eatoni* has vivid scarlet flowers in spikes. *Spheralcea pedata* is a beautiful plant with terracotta colored flowers, very like its close relative the mallow. The spher-alcea is a dainty recumbent plant and I wonder why it is not better known, but then surprisingly few lavateras are grown which, although they stand up straight, are similar in effect.

Among other possibilities for gardens, not in a desert, was *Arabis ameroPHYLLA*, a pale lavender-colored cress growing about eighteen inches high. The flowers grow darker as they fade until they are almost purple, and the plant is attractive in masses. The white starry *Ranunculus tuberosa* was in flower, and *Lotus Wrightii*, a shrubby perennial with yellow flowers; *Encelia farinosa*, the leaves of which are burnt as an incense. There was a shrubby *Salvia Greggii* growing three feet high with reddish magenta flowers one inch long and lustrous green leaves. It must bloom twice a year for here it was flowering in early March and Bailey says it blooms in autumn. There were many attractive salvias. Someone ought to grow them all and have a salvia garden which besides being a brilliant mass of color would smell

sagey and aromatic. *Tradescantia scopulorum* has deep blue flowers on a plant about eighteen inches high. Personally, I can dispense with tradescantias because they are so invasive and because they close at night which is to me an inexcusable quality in plants for my own garden, no matter how attractive it may be for purposes of pollination; for I prefer my garden in the late afternoon when the long shadows are charitable to gaps and deficiencies and colors stand out more distinctly than in the brilliant sunshine of morning or midday.

There were two handsome am-sickias, very like orange-colored borages; one is *Amsickia intermedia* and the other *Amsickia tessellata*, the handsomer of the two. *Lesquerella purpurea* is a pale pink version of a dentaria. *Laphamia gilensis* is a yellow composite growing in the rocks and *Baileyi multiradiata* another composite with yellow daisy-like flowers. *Erigeron divergens* is a lovely plant for gardens, with flowers a good shade of lavender pink and one foot high. Red flax, a vivid annual, was growing in the beds, *Linum grandiflorum*, but it never does well for me though it thrives exceedingly and is popular in the southwestern gardens.

Besides the native plants there were some handsome foreigners. Such as the *Dimorphothecas* from Africa, and *Buddleia asiatica* with graceful spikes of white flowers. *Myrtus microphylla* is much used as a hedge in Arizona and is grown at the Arboretum. It clips well and is fragrant and has been grown in Spain and Italy for thousands of years. There was a species of *origarum* which grew three feet across and almost as high and made a glorious fragrant hedge, as did rosemary which was four feet high and six across and spangled with its

pale blue flowers. *Santolina chamaecyparissus* grew to huge proportions too. Laurustinus (*Viburnum tinus*) with its shiny leaves is a handsome plant which might do well in pots in gardens too cold for it. *Berberis potanini* had yellow flowers dripping in pendant racemes. *Cotoneaster harroviana* was another handsome but alas—not a hardy shrub for me. *Vinca major* always makes me turn green with envy because of its huge blue flowers far handsomer than the *Vinca minor* I have to be content with. The almond trees were in bloom, a sight which always reminds one of Italian poetry and days spent in the hills of Spain so similar to this region. The cactus

collection is wonderful and well displayed. The whole arboretum is planted in a casual and naturalistic fashion.

After exclaiming and enthusing over the plants the polite guide led me into the seed room. Could kindness and hospitality be exceeded when he asked me to make a list of seeds which I would like to have sent to me to try out in my own garden? And the seeds have come and are going to be planted this week.

Another time I will write and tell how they have survived the rigors of our winters and the lack of skill of one enthusiastic but unfortunately not too skilled a gardener.



Chicago Park District

Garfield Park Conservatory

Garfield Park Conservatory—Chicago

FRANK K. BALTHIS
Horticulturist

Garfield Park Conservatory, Chicago, Illinois, is one of the world's finest institutions devoted to the cultivation of exotic plant material. The collection of plants is notable for it consists of 5,000 species and varieties conservatively valued at \$1,250,000. The physical property would cost \$1,000,000 to erect at this time, and, with the hotbeds and coldframes and propagating houses covers an area of about four acres. Two other conservatories are maintained by the Chicago Park District, one, the famous Lincoln Park Conservatory that attracted so wide-

spread attention during the Columbian Exposition in 1893, and another in Washington Park, which was a part of the Exposition itself. Aside from the collections that are maintained under glass an extensive system of flower beds is arranged in various parks and along the boulevards during the summer. It is estimated that if all the flower beds were placed in a single plot they would cover fifty acres, 800,000 plants being required to complete the planting. But this story concerns the Garfield Park Conservatory because it is the Headquarters of

the Floral Division. Mr. August Koch has been actively in charge since 1912.

There are eight exhibition houses in the conservatory and each house is planted with those plants which will grow best under the same general conditions. These houses include the Palm House, Show House, Horticultural Hall, Aeroid House, Succulent House, Economic House, Warm House and Fernery. The Propagating Houses, numbering sixteen, are located at the rear of the conservatory.

The Palm House is the largest in the range; it is 250 feet long, 85 feet wide, and 65 feet high. Palms dominate the vegetation with 110 species and varieties, some of which are quite rare. A very fine specimen of Sugar Palm (*Arenga saccharifera*) from India, with thirty-foot leaves, is an outstanding example. A fine collection of bamboos occupy one end of the house. *Cocos plumosa* grows to the roof as do several others of the Fan Palms (*Livistona chimensis*), (*Washingtonia filifera*) and several others. Beneath the palms a ground cover of Sword Ferns (*Nephrolepis exaltata* in variety), the Weevil Plant (*Curculigo recurvata*) and others lend a naturalistic charm that is unsurpassed.

The Show House and Horticultural Hall are utilized for displays of flower and foliage plants at all seasons of the year. In fact, the conservatory was the first to inaugurate the system of staging a twelve-month flower show and this has been the program ever since, although a large amount of material is required.

Horticultural Hall is a beautifully constructed, rectangular house that is superb as a show house. It is 250 feet long, 50 feet wide, and 45 feet high. At practically all seasons of the year a display may be seen here and during Spring and Fall several garden clubs are granted permission to use

it as a place for holding their shows.

The Aeroid House is planted with those plants which delight in a hot, moist habitat, and include such interesting, unique, and beautifully colored plants as the Anthuriums, Dieffenbachias, Pandanus, Maranta, Calathea, Fittonia, Strobilanthes, and Cordyline. Overhead, and climbing the rafters, is a vitis, member of the grape family, that has the amazing capacity of sending down aerial roots that give the appearance of numerous strings, with the suggestion of a curtain, hence the common name "Curtain Vine." A miniature replica of an abandoned volcanic lake, with suitable shore plants clothing its edge, is a novel feature.

Adjoining the Aeroid House is the Succulent House, which is arranged in the form of a large rockery with pockets for the plants. The collection includes about 700 kinds of desert plants from all parts of the world, and on account of the unusual and grotesque appearance of some of them, they attract much attention. Notable specimens include several plants of the Suwarro or Giant Cactus (*Carnegiea gigantea*), state flower of Arizona, twenty feet high and flowering during the past three years. There are several five-foot Ferocactus or Barrel Cactus; the rare *Idria columnaris* that looks like a huge carrot; many prickly pears; 29 kinds of agave or century plants, several of which have flowered during the year; 350 kinds of cacti, aloes and euphorbias from Africa; and slender, climbing species reach the roof. Yuccas form a conspicuous background; in fact, there is no finer display of these plants in the country, excepting some of the collections on the Pacific Coast.

The Economic House, as the name signifies, is filled with useful plants, or those which produce something of value for human benefit. Among these

may be mentioned the more common things like the coffee, pepper, allspice, lemon, grapefruit, fig, orange, vanilla, olive, sugar cane, cocoa, avacado, guava, St. John's Bread, Star-apple, sand-box tree, eucalyptus, rubber plant, jasmine; in fact, more than a hundred of these useful plants lure the student for he usually knows something of their products.

The Warm House contains a miscellaneous collection of ornamental plants, and especially those with colored foliage, such as the croton, peperomia, sansevierias, including the rare *S. cylindrica*, Panama Hat Plant, fruiting pineapples, bryophyllum or sprouting-leaf, *Alpinia Sanderac*, and other plants that require a high temperature.

The visitor who enters the Fernery stands in admiration as he gazes across the delicately massed fronds. The general design is in the form of a large rockery with a shallow pool in the center. Ferns, rocks and water are akin and here the plants grow with that luxuriant nicety that the gardener desires. The collection numbers 125 species and varieties, as well as others which do well under the same conditions. A choice collection of Staghorn ferns (*Platycerium grande* and others) and the Oak-leaved Fern (*Polypodium quercifolia*), Ginger Lily (*Hedychium*), and Cardamon (*Elettaria*) furnish a varied landscape. The descendants of plants that flourished during the "Age of Cycas," or in prehistoric times, are well represented for one of the finest collections of cycads, tree ferns and selaginellas (Club Mosses) has been brought together. Several of the rare Turnip Fern (*Angiopteris*), with eight-foot fronds, and of prehistorical lineage, are unusually interesting. An eighteen-foot specimen of *Cycas circinalis* is probably the oldest of its kind in America today.

The number of visitors who frequent the conservatory is the measure of success although they have nothing to do with the arrangement, culture, or the bringing together of the plant representatives, be they few or numerous. However, today success should be considered from the educational standpoint insofar as it is attained in the dissemination of horticultural knowledge. A total of 8,155,967 persons have visited the conservatory since records were first begun in 1919, which is a large number when it is realized that aside from the playgrounds and park areas there is no other major attraction in the West Side District. The greatest number attending during a single year was 639,930 and for a single day 34,817, made during the Chrysanthemum Show in 1936.

Four major flower shows are held during the year—the Christmas Show, Easter and Spring Show, Mid-Summer Show, and the Chrysanthemum Show. Rare or outstanding plants that come into bloom or have unusually attractive foliage are also given considerable publicity and placed where visitors may readily see them.

The Christmas Show instantly suggests the Poinsettia as the featured flower, but many other plants are utilized to make it a real attraction. The attendance over the official 15-day period was 12,228 in 1935.

The Easter and Spring Flower Show is thought to be the most beautiful of all shows for the featured flower is the great collection of spring bulbous plants—tulips, hyacinths, narcissi and the smaller types, and the lovely Easter Lily (*Lilium formosanum* and *giganteum*). Fully 25,000 plants are especially grown for this display, which extends over a sixteen-day period and attracted 88,157 at the 1936 show.



Chicago Park District

The Chrysanthemum Show

The Mid-Summer Flower Show is held during July and August and contains extensive material of a highly ornamental nature, such as the handsomely marked begonias, flowering begonias, fancy-leaved caladiums, and gloxinias, as well as numerous other plants.

The most popular show is the Chrysanthemum Exhibition that is held during November. Approximately 7,500 pot plants of 700 varieties and illustrating all methods of culture, are shown. Grafted plants and specimens of the original species (*C. indicum*) never fail to arouse interest. Many of the conservatory's own hybrids are included, and some of these are the equal of any observed in large collections.

One hundred and seventy-six thousand seven hundred and eighty-three visitors were present during the 25-day period of this show in 1935, an all-time record for any show.

During these special shows the conservatory is open each day from 8 A. M. to 10.00 P. M., but at other times the hours are from 8 A. M. to 6 P. M. Opening during the evening never fails to attract a large attendance for many flower lovers find it inconvenient to attend during the day.

It is interesting to note that all plants are labelled with the common and botanical names, and habitat, where known. Large descriptive labels, giving pertinent facts, are placed at important specimens or

groups, such as coffee, orange, Dumb Cane (*Dieffenbachia*), and Traveler's Tree (*Ravenala*). These labels offer the visitor an opportunity to gain much valuable information as he passes from house to house, and are a very important factor in the program of horticultural education.

The Propagating Houses are located at the rear of the conservatory and number sixteen. In them are grown the material for outdoor planting, and for the displays indoors. Special collections, such as the orchids, numbering 3,000 plants of 465 kinds; a considerable part of the small, rare succulents; the water lilies, and many of the small plants are kept in these houses. Experiments are also carried on in a portion of this range, such as the development of bigeneric crosses of *Amaryllis* and *Lycoris*, and specimens of *Schizanthus* and *Primulas*.

With all of this material growing under glass, the conservatory is not a botanical garden for it is not affiliated with an accredited school of learning. The collections are, however, comparable to those found in some of the best known gardens and in many respects are superior to any. The old idea that a collection of plants is the ultimate goal of a municipal conservatory has been supplanted by the modern view that the opportunity for displays that will aid in the advancement of horticultural knowledge are of far greater importance. The staging of certain types of gardens, albeit they must be restricted in area, as an object lesson for visitors, are far more appealing and educational than a collection of plants that merely excite a botanical reaction. The average visitor knows so little about plant life, insofar as their botanical characters are concerned, that every effort is made to

arouse his interest by growing plants that are showy, useful for his own purposes, or have a definite appeal in some other manner. Not only are flower shows staged, but the permanent plantations in the various houses suggest the habitat and material that is found in localities far distant from their own.

About 500 requests for plant material from schools are filled annually, and every effort made to cooperate so as to utilize the material in an educational manner. The request may be for only a small amount of *Marchantia* (Liverwort), a few fern fronds which show the sori which contain the spores, flowers for dissecting, or for any other use in classes.

A public conservatory should be the center, the headquarters, for horticultural knowledge, the place where the citizen may feel free to seek information, and this is what the Garfield Park Conservatory is becoming. The program includes a free lecture guide service which enables groups of interested citizens to view the exhibitions under the direct supervision of competent guides. As the group passes through, the guide delivers a lecture concerning important plants, the displays of flowers, and answers gardening questions that may trouble anyone in the group. The guide thus forms a valuable personal link between many individuals from widely separated sections and the conservatory. Classes of school children and garden clubs are given special attention and it is of interest to know that during the Easter and Spring Flower Show, this year, 123 classes of 4,715 individuals, were supplied with guides, the demand on certain days taxing the available personnel. During April more than 10,000 school folk were present, which is indicative of the appeal the display has



Chicago Park District

The Cactus and Succulent House

to teachers. It is obvious that the lecturer must adopt his remarks in accordance with the age of the pupils for he cannot speak beyond the intelligence of the group. The younger child may be shown the various kinds of leaves, the play of light upon them, the banana plant, coffee, orange, lemon, and colors of flowers, but only the older children will understand anything of culture. Geography and plants may well be correlated. Garden clubs may request a lecture on a special subject and the guide usually can give an extemporaneous talk on the subject desired.

Members of the Staff are frequently assigned to lecture before organizations—garden clubs, schools, civic societies, church groups, and horticultural societies—on many types of gardening subjects. During 1935 a total of 114 lectures were given. Evening lectures are given as the lecturer desires. Members of the staff frequently officiate as judges at Flower and Garden Shows, which enables many valuable contacts to be made. A total of 30 shows were so aided in 1935.

A publicity department is maintained to prepare copy for the press, which includes the great daily and weekly newspapers, community sheets, and horticultural magazines. Copy is released about once each week, unless a rare or outstanding group suddenly reaches its peak of attractiveness, as may be the case with a group of plants come into flower and lasts for only a few days. Announcements are mailed to the larger department stores, public and parochial schools, garden clubs, horticultural societies and a few individuals who are heartily in sympathy with horticultural education. Contributions to publications are frequently made by members of the staff usual-

ly with the idea in mind of exploiting the conservatory.

A competent employee is detailed to act as announcer over those radio stations that can spare the time, and this is a very valuable means of advertising the displays and programs. Gardening talks are also given, usually of timely subjects, as an aid in the solution of garden problems that are certain to arise from time to time.

For the past several years, during February and March, a series of garden lectures has been offered to amateur gardeners with satisfactory results. Coming at a season when changes of weather is frequent, the attendance varies considerably, but it is believed that by persistent effort the series will become a real, much sought experience by numerous amateurs. The subjects discussed are all practical and are presented in the form of a round table, thus affording the audience an opportunity to present individual problems. The lecturers are all members of the staff, men of wide experience, college graduates in horticulture, or familiar with a special phase of gardening interest. In the spring of 1936 four lectures were held in residential sections of the city and a large attendance enjoyed. Illustrated talks and demonstrations, such as may be undertaken in sowing seed, transplanting, mixing soils, and cuttage were popularly received.

After all is said and done, the stimulation of interest, the advancement, the building up of Horticulture must come from within the ranks of those who are actively engaged in the various branches. Anyone may sow a seed and watch a plant develop into a thing of beauty, but to know why it does so, why light, heat and moisture are essential is quite another matter. It is hoped, possibly with a degree of timid-

ity, that eventually the facilities of Garfield Park Conservatory, as well as other institutions of a similar nature, will become great schools of horticulture whereby both amateur and professional will be able to advance

their knowledge. Who knows but that a seed of knowledge sown in the right environment may not produce someone who will prove a great benefactor to the human race, either from an economic or an aesthetic way.



G. Neville Jones and the author sitting in front of the scree where they found *Senecio Websteri*

Plant Notes from the Northwest

NORMAN F. RANT

It is a difficult matter to account for the distribution or localization of certain plants. We will take for instance *Loiseleuria procumbens*, the creeping azalea. We did know of it only as far as I am able to ascertain on Mt. Garibaldi in this Province. And yet, while on a plant hunting trip with a friend of mine, he had the good fortune to discover it on a lone mountain of about 6,000 feet, at least one hundred miles S. W. of Garibaldi. The plants occupied only an area of roughly 20 x 30 feet, growing with *Empetrum nigrum*.

Scattered among it were growing one or two erigerons, both varieties of the false heathers, *Luetkia pectinata* and an odd plant or two of *Pentstemon menziesii* var. *Nootkaensis*. I was fortunate enough to be able to cut out a clump not a foot square which included everyone of the

above mentioned plants which I have growing in a 10-inch pan.

From among all the mountains situate in the Province of British Columbia and Alberta and the States of Washington, Idaho and Montana, the Olympic Mountains stand out in my opinion as growing more plants which are local to it, growing in a very limited area than any of the others. There are at least a dozen different species not known as inhabiting anywhere else. To quote from that well known authority Piper in "Flora of the State of Washington." The most striking peculiarities as regards the mountains botanically considered, are the excessive rainfall on their Southern and Western slopes and their isolated position. The heavy moisture precipitation results in modifying greatly the effect of altitude, so that the lines of zonal demarcation are

much obscured. Many humid Transition species ascend even to the Hudsonian zone, producing thus a strange mixture of lowland and subalpine plants.

From the isolated position of these mountains together with their considerable elevation some peculiarities would naturally be presupposed. The flora is, however, exceedingly similar to that of the Cascade Mountains. The species which are not of the Cascade Mountains, present, however, some interesting problems. Up to the present time of writing there are a dozen plants known to be peculiar to the Olympics and these are all species of high altitudes. They are as follows:

Aster paucicapitatus
Epilobium mirabile
Pentstemon Nelsonae (yellow)
Lewisia var. not named
Senecio Websteri
Synthyris pinnatifida tomentosa
Campanula Piperi
Erysimum arenicola
Polemonium amoenum
Senecio Flettii
Spiraea Hendersoni
Viola Flettii

Aster paucicapitatus is much like all the others, with the exception of the color of its flowers, which are white becoming pink. This plant is listed under *Eucephalus* in Piper and Beattie's Flora of the North West Coast.

Campanula Piperi is the gem of the Olympics. To see this plant growing in the crevices of the face of a high and steep perpendicular rock, forming different lines at all angles, is a treat for any lover of true alpine. Its main feature for beauty is the bright orange-red color of its anthers which can be seen at some distance. It is also found in the screes at the base of rocks, but always where it can follow the contour of the rocks; it sel-

dom if ever seems to wander out into the screes away from the rocks. It grows well for me in a starved scree and runs all over it. It completely disappears in winter with the exception of the little stubby tops of its bare stems showing here and there.

Epilobium mirabile is a well behaved plant of this large family with rather paler colored flowers.

Erysimum arenicola, I am very partial to. In its natural haunts, high up in the half-shaded screes it grows usually in a single head with several stems of bright yellow flowers. In my scree it forms large dense tufts and is not nearly so dainty. Starved scree is evidently necessary to get the best out of this plant. It is a very charming alpine wallflower.

Lewisia, var. unnamed, was discovered by us on one of the many trips into these mountains. It is not unlike *L. Columbianum* but that it dies down in winter and was found growing in decidedly wet ground. So far I have had no success in either growing or flowering this plant. Some time or other the powers that be will name this plant. Only in one spot of not more than an acre did we come across this *lewisia* and we have not heard of it having been found in any other locality.

Pentstemon Nelsonae, named after Mrs. Oscar Nelson, who lives at the foot of the mountain "Angeles," in the Olympics. Mrs. Nelson has had this pentstemon growing in her garden for several years, not thinking it was any different to perhaps lots of other yellow pentstemons. It turns out to be a decidedly new species and is the only yellow plant to be found growing west of the Cascades in the State of Washington. *P. Nelsonae* attains a height of from 20 to 30 inches, is strong stemmed and a good bloomer.

Polemonium amoenum is found growing in a very small area on the S. W. side of these mountains. I have not tried to grow it nor have I a description of it.

Senecio Flettii, named after the discoverer, who was instrumental in bringing to light certain of the rarer plants of these mountains. This senecio is not a plant that most rock garden enthusiasts would care about wasting their time and space over. For a combination of nice glossy green foliage and dark yellow flowers it is more than useful.

Senecio Websteri is called after my late friend, E. B. Webster, who had practically lived in these mountains for a great number of years. In fact, it is only within the last month or so that he died up in his Alpine home at the foot of Mount Angeles. *S. Websteri* is a floccose-woolly plant with thick very shiny basal leaves attaining perhaps 8 or 10 inches in height. The flowers of a very bright yellow are carried singly on stems slightly taller or less than the foliage. I have not succeeded with this plant; it evidently must have underground moisture. It occupies a very confined area on Mount Angeles only in screes facing west or northeast. Mrs. Nelson and the late Mr. Webster both had it growing well. The former grew the plants in the natural soil of her garden on the northeast side of the house in ground under which the pipe to the septic tank drained, hence the underground moisture.

Spiraea Hendersoni is a delightful little carpenter. Again on Mt. Angeles only, this plant occupies the base of the rocks along or around which it forms dense mats of rotund rosetted leafy stems. The foliage, which is ever green, changes color several times during the season. The flower spikes are carried just above the

foliage and the color of the flowers vary from a dirty white eventually changing to a light brown. This plant grows well in my screes but does better as a pot plant in the Alpine house.

Synthyris pinnatifida lanuginosa is the bane of my existence. One of the most charming alpine with its 2-3 inch high tomentose almost ferny foliage and its wee plumes of a beautiful blue it is undoubtedly a fine plant. I have flowered it in a pot in the Alpine house but under no conditions will it flower for me outside. In its natural state it occupies an alpine meadow at over 6,000 foot elevation on Mt. Angeles. The soil is a more or less turf. Within a stone's throw of these plants the false heathers abound. The turf they grow in is more gritty, bordering as it does one of the screes which are washed down among the plants. The area becomes dry in summer. They are perhaps the earliest plants to flower on Mt. Angeles, and they do so in our Alpine house. I have sent several of these plants to England and will be anxious to hear of their welfare.

Last but by no means least of these plants which are indigenous to these mountains is the dainty *Viola Flettii*. It is not a plentiful plant in its own home on Mt. Angeles, and it inhabits exactly the same ground as *Campanula Piperi*. When growing in crevices it is hopeless to try to dislodge it. Now and again one finds small colonies in the firm stone screes, these are easy to take up and when planted out under similar conditions will grow and thrive. The only difference is that under garden conditions the plant is liable to go more to leaf. It always looks its best when growing in very small crevices on tiny ledges in the face of rocks. There does not seem to be any other viola of



The habitat of Campanula Piperi and Viola Flettii

anything like the same habit as *Flettii*. With its dark round kidney-shaped leaves and violet-colored flowers yellowing towards their base it is indeed a fine wee alpine. Starved scree would seem the ideal situation for *Viola Flettii*.

The Olympic Mountains might almost lay claim to having a monopoly on *Douglasia laevigata*, the only other mountains where it is known being Mt. Hood, in Oregon, and the Goat

Mountains, near Mt. Rainier, in Washington. There are one or two very fine colored forms of this plant and I have the satisfaction of having discovered a pure white form which I have succeeded in growing. A white form of *Campanula Piperi* has been found but I believe the finder has not been successful in growing it. Last year Mrs. Nelson, of Mt. Angeles, had the luck to find a white *C. Lyallii* on these mountains.

A Book or Two

Spring Flowers from Bulbs. By Claire Norton. Doubleday, Doran and Company, Inc., Garden City, N. Y. 1936. 94 pages, illustrated. \$1.00.

This is a reprint as a separate book of Miss Norton's contribution to *The Complete Book of Gardening*. It is written for beginners, contains only the most elementary information and discusses only the most usual and most easily available material. If you have never grown any bulbs this will do for a beginning, but if you have passed that state, don't bother.

Seeds, Their Place in Life and Legend. By Vernon Quinn. Frederick A. Stokes Company, Philadelphia, Pa. 188 pages, illustrated. \$2.00.

This is a very charmingly printed and illustrated book that should delight all gardeners, whose only thought of seed may have been its size and the proper depth for planting.

No clear distinction is made between seeds and fruits and in the majority of cases, the illustrations are of fruits and not of seeds.

The chapter headings, Seeds of Many Shapes, Fly-away Seeds, Other Seed Travellers, Common Uses of Seeds, Strange Uses of Seeds, Poisonous Seeds, Edible Fruits and Nuts, Seeds and Superstition, indicate the contents clearly.

The book is worth reading for itself whether you ever plant a seed or not.

Bulbs For Your Garden. Allen H. Wood, Jr. Houghton Mifflin Company, Boston. 210 pages including index and 23 illustrations. \$2.75.

It was with keen disappointment that the reviewer read through this book; for American gardeners have long needed a good bulb book in which the rarer and the less commonly known bulbs, corms, etc., are adequately described and their cultural requirements at least hinted. In this book the usual run of bulbous plants is well taken care of, but such knowledge is common property; it is the less-known which we should have presented to us if American gardening is to advance.

A case in point is the snowdrop; *Galanthus nivalis* and *G. Elwesii* are briefly described but nothing is said about the list of ten names which follow. *Romulea* is listed as a South African corm only, whereas there are a good half dozen from the south of Europe which would be interesting material for the rock garden.

In the chapter on Narcissus two glaring errors are made. In Division 1 the sections should be: A, yellow trumpets; B, white trumpets, and C, bicolor trumpets and not Class A, whites, and Class B, yellows. The cyclamen-flowered narcissus is *not* *N. triandrus*, as one might infer, but is *N. cyclamineus* and on page 102 the triandrus varieties and hybrids are far too inadequately described. Also there is no "*jonquilla minimus*"; *minimus* is a trumpet species whose correct name is *N. asturiensis*.

In the chapter on Tulip species the rather well known *T. persica* is listed as a synonym for *T. patens* yet Sir Daniel Hall, who is the latest authority on this genus, still retains the unauthorized name of *persica*; and according to Hall *dasytemon* becomes the synonym

of *T. tarda*. *T. primulina* is listed as coming from Asia Minor whereas its habitat is Algiers; and the habitat of *T. Eichleri* is Armenia and Turkestan, not Turkey. *Turkestanica* is not a species but a variety of *T. biflora*.

The publishers have erred in dropping the capitals in all, or rather almost all honorific names—some of the captions still retain them. As botanists, not horticulturists, give the names to plants, and as botanists retain this altogether praiseworthy custom it would have been much better taste to have retained them here.

Generally speaking the term bulb is stretched somewhat too far in that it seems to include succulents and much of the material listed is for the greenhouse and not the garden. It is usually a mistake to republish random articles which have appeared in various magazines in book form for the more permanent volume is often quoted as authority while the magazine article is not.

The lower photograph on page 102 should have been credited to Donald Merrett who holds the copyright.

A. B.

Lilies: Their Culture and Management. By H. Drysdale Woodcock and J. Coutts. London: Country Life, Ltd., New York, Charles Scribner's Sons, 1936. 242 pages. Illustrated. \$6.00.

With the reviving interest in lily

culture, the publication of this book should stir into activity the most sluggish gardener who may have been wondering whether or not he should make another effort to have lilies.

The book is divided into three parts, of which the second is given most space. In the first section are discussed all those topics that have to do with the cultivation of lilies; in the second, are listed descriptions of all the known lilies and in the third as appendices various matters that do not fit into either of the other sections but are of interest and value to the amateur grower and student.

As might be expected the first section describes the structure of the lily, its habits of growth and soil preferences, its use in gardens and greenhouses, propagation, hybridization and troubles.

The second section is botanical but in terms any intelligent gardener will enjoy and use, with a brief chapter in classification, and a long chapter on The Lilies of the World mostly given over to an alphabetical classification with discussions that are horticultural as well as botanical.

Among the appendices are a useful bibliography, brief notes on allied genera and on storing and packing.

The illustrations are many and almost without exception, so excellent that they alone should set the reader in search of more and more lilies for their own garden.

The Gardener's Pocketbook

Salvia sclarea (See page 203)

In spite of the fact that this is an old garden plant and one that has been recommended in all the garden books that are most beloved by gardeners, it is not often met with in many parts of our country. Quite apart from the beauty of the plant itself, it is of particular value to the designer of a perennial border because of its large scale. The large and handsome leaves of the basal rosette form a conspicuous note in the border before the flower stalks develop and the vigorous stalks in their season give a striking contrast to the other more slender perennials that develop at the same time, early summer.

Possibly the fact that the plant is biennial has something to do with its limited use, but the plant is so easily raised from seed that this need not be. Self-sown seedlings do occur but not with the abandon that marks some other salvias admitted to the border that sometimes self-sow enough to be a nuisance.

Like other biennial plants, this is benefitted by planting in good soil so that a strong and well rooted rosette is formed before the autumn. Growth should not be so lush, however, that the succulent leaves will decay during the winter in the fashion of too well-grown foxgloves. With such a preparation, the plants are ready the following spring to send up many widely-branched stalks, often taller than their recorded three feet and ending in a mass of flowers and colored bracts. The latter are pinky-white and often more showy than the bluish-white flowers that they subtend.

Rhododendron Vaseyi A. Gray.
(See page 205.)

If this species had been recently brought in from western China, it would be universally hailed as a great botanical discovery, worthy of praise in superlative terms. For it possesses garden beauty in no small degree, to which is added the virtues of vigor and hardiness. In England it has already been accorded the distinction of four stars by the Rhododendron Association, which is the highest merit rating possible. In this country, where it is native, it is too little known.

Rhododendron Vaseyi is not a spectacular plant like the Indian Azaleas at Magnolia Garden. It has neither brilliant color nor large flowers. But it is a plant of great beauty and considerable delicacy. Its flowers are of fair size, of a color reminding one of very "pinky" apple blossoms and of a form unique among azaleas. The shape of its corolla is not unlike that of the rhodora, but *R. Vaseyi* has much larger flowers, with "petals" that are broader and longer, and the lower lobes are spread apart giving the flower a "two-lipped" appearance. It is entirely deciduous. It blooms very early, about May 10th at New York City, before any of the leaves unfold, and the wide-open two-lipped flowers hanging on the bare stems present an airy appearance that must be seen to be fully appreciated. The plants are tall and upright in their habit of growth, attaining from six to fifteen feet. They are vigorous and rather rapid growers compared with other azaleas. Plants in my collection have endured temperatures of —25 degrees



Salvia sclarea

[See page 202]

F. every winter for the last five years, with even lower records occasionally. Their early blooming habit, however, sometimes causes them to start too early in mild climates, with resulting injury from late frosts. This danger in England has caused them to be regarded as "tender" there. Happily, this is not the case in the eastern United States.

This species grows wild in the higher mountains of western North Carolina, above 3,000 feet. George Vasey discovered it in 1878 and it was soon introduced into cultivation. It is now a fairly well known and easily obtainable item on the lists of the nurserymen who sell azaleas, but, in my opinion, is still too little known and appreciated by the general public. It is really quite distinct from all other American azaleas and has been placed in the Subseries *Canadense* (or the Section *Rhodora*) by the more recent systematists. Some years ago Dr. John K. Small, in studying this species, concluded that it was distinct enough to be worthy of a special generic name and he called it *Biltia Vaseyi*, but this name has never gained general acceptance and the species rests today among the azaleas within the genus *Rhododendron*, although the names *Azalea* and *Biltia* still cling to it in certain quarters. Other species which seem to be related to it, besides *R. canadense*, are *R. Albrechtii*, from northern Japan, and the beautiful *R. pentaphyllum*, another Japanese species.

Where a tall azalea is desired, having delicate coloration, vigorous growth, hardiness and earliness of bloom, *Rhododendron Vaseyi* is recommended. Some variation exists in the intensity of the pink flower color and a pure white form, called variety *album*, occurs as a natural variant.

While this species need not be considered as the very best native Ameri-

can azalea, it is certainly one of the best. If it is worthy of the highest possible merit rating in Great Britain, despite its susceptibility to frost injury in that country, how much more valuable must it be in the United States where it is considered to be of iron-clad hardiness—with hardiness here at a premium?

CLEMENT G. BOWERS.

Binghamton, N. Y.

Raising Seeds Without Heat

My neighbor, Mrs. Stoker, lends me your magazine, and as I have had a good deal of enjoyment from reading it, I thought I might make some return to your members by telling them of an easy way of raising seeds without heat in a greenhouse or frame.

I make all my seed boxes of $\frac{3}{4}$ -inch lumber. The boxes are all the same size, twelve inches square and 4 inches deep. The earth must be at least $\frac{1}{2}$ an inch from the top. In the daytime you let the boxes warm up and *stack them up one on the top of the other* before they get chilled in the evening. If it is very cold you can stack the piles of boxes touching each other and put a mat over them, but this is not necessary. Out of the 35 varieties of seeds I have sown this year I have failed so far with *mentzelia* and *zauschneria* (both Californians, I believe), which may appear when it is a little warmer, but I have had wonderful results with three varieties of *meconopsis*, *Saxifraga longifolia*, 5 varieties of *pentstemon*, pansies and violas, *delphiniums*, *Dianthus Winteri* and *Delight*, House's *Scabiosa Caucasica*, *Oenothera odorata*, and quite good with *ipomoea*. And I have never had healthier seedlings.

This result is the more striking as we have had the worst spring on record. On March the 25th, the ground was frozen so hard that one could not



Lilian A. Guernsey

Rhododendron Vaseyi

[See page 202]

dig at 8 in the morning. On March 30th, wash hung out to dry in the sun at 11 was frozen stiff by 12, owing to very cold wind. My greenhouse is fairly derelict, several panes of glass being broken and the holes blocked with shingles.

I have written this because I imagine there must be many who are unable to use heat because of expense or the amount of extra work. Having now tried it out two years I believe it is very nearly foolproof. It requires the minimum of time and labor. It also can be tried without any outlay. It is, of course, possible to use boxes of any size as long as they are all the same size. Personally, I find a box 12 inches square most convenient in many ways.

There must be spare boxes filled with earth to put on top of each pile of boxes—otherwise the top box would get chilled.

GEORGE H. TOWNEND.

Vancouver, B. C.

Crinum sp. (Milk and Wine Lily)
(See page 209.)

The *Crinum* species known as the "Milk and Wine Lily" in the lower South and especially in Florida, which is illustrated in this number, provides many colorful moments for the countryside in rural sections during the early summer.

The exact botanical determination of the species is lost, apparently, in several decades of obscurity, if it ever was certainly known. A careful survey of all the authorities indicates that it is probably one of the following species, *Crinum Zeylanicum*, \times *C. Sanderianum*, *C. Kirkii* and *C. finbriatulum*. The bulbs of this species are commonly sold in the nursery and plant trade under all of these names at the present time. They are large in size, up to six inches in diameter.

It is hoped to have a more definite identification available in another year or so, as it is planned to enlist the cooperation of one of the large American botanical gardens in the problem.

The bulbs are of easiest culture, and to some extent, with the ubiquitous *Hippeastrum equestre* take the place of tulips, hyacinths and daffodils in the extreme lower South, where these more temperate bulbs do not thrive as well as they do farther north. The "Milk and Wine" lilies need only be planted in any good garden soil to do famously. They would probably be hardy anywhere the ground does not freeze hard in the winter months. The bulbs really seem to resent good care, only asking an occasional weeding. Fertilizer is not necessary, and the rain always supplies sufficient water for their needs.

It is this ability to take care of themselves that has made the "Milk and Wine" *Crinum* so popular and widespread in old gardens and around every country homestead. The bulbs remain practically dormant during the winter, and the foliage is sometimes cut down to the ground by frost. However, the bulbs, which have a neck more than six inches long, remain uninjured and sprout forth again with the first warm spring rains.

In Florida the first heavy downpours of the summer rainy season bring the bulbs into bloom in June. The scapes are two feet or more tall, and rise gracefully above the spreading fountains of the leaves. There are usually 10 or more flowers to the umbel. These are white with a broad wine colored or purple rose stripe down the center of the petals. This coloring carries through to the reverse of the petals, making a flower of striking decorative quality. The flowers may be 6 inches across.

The flowers are at their best in the

early morning, and usually fade somewhat as soon as the sun is high overhead. Few crinum blooms can stand strong sunlight. Two or three flowers open each successive night until the entire umbel is gone. The bulbs will throw up several scapes each under good growing conditions and with an abundance of rain.

Probably the reason why this bulb is less known horticulturally among the northern greenhouse growers than many inferior items is the lateness of its blooming season, which comes when all the "tourists" and winter visitors in the Gulf Coast sections and Florida have gone north again. While not exactly "born to blush unseen," only the year-round resident sees it at its full beauty. It is seldom or never offered in the leading bulb and plant lists of the North.

This crinum sets seed readily with hand pollination and should prove useful to hybridizers, although it apparently has been overlooked in this work for the most part. Only "Ellen Bosanquet," the outstanding hybrid crinum in America today, shows its influence in the wine color (self) of its blooms, and like the "Milk and Wine" lily, is a summer flowering type. "Ellen Bosanquet" is an example of what may be accomplished in the crinum field of plant breeding with the "Milk and Wine" species.

WYNDHAM HAYWARD.

Winter Park, Fla.

A Gardener Afield

At the end of this June, suddenly and unexpectedly I found myself in the Adirondacks, after twenty-five years' absence.

Before when I had been there, flowers were flowers, very pretty, but I knew nothing of them botanically, nor cared to know. Since then, gardens and gardening have been my occupa-

tion, yet botanically, how little do I know, for when a handful of lavender purple orchid-like flowers were seen in a friends' camp, I could not name them, nor can I yet be sure.

The lad who had brought them in to his mother, took me to the "bog," as he called it, where he had found them, as I wanted to see their native habitat.

To my surprise, instead of seeing masses of their rosy purple, behold they grew far, far apart, very slender, and rising from the deep thick moss of the bog, on apparently leafless stems.

The four of us, two gay college girls, the lad, and myself, more cautious in the rear, stepped out upon the "bog." "Walk," said our guide, "on the hummocks and you won't go in." Before us, as we came out of the thick pine wood, lay the lake, round and shimmering in the sun, rimmed all about with this thick mossy bog, green as a lawn, the only growth on it, some small huckleberry bushes and a scrubby juniper or two. As for the hummocks, one had to guess which they were, a bit thicker place on the moss, a bit higher than the rest, for one sank gently everywhere into water. I felt safer only when I bent over a small juniper and stood on that. Then, surveying the scene with slightly more firmness of mind and body, I saw some orchids near me on their grass like stems here and there several yards apart, and here and there some fine pitcher plants, with their odd flower-scape rising from the center of the pitchers, quite early for them to be blooming.

As the others flitted further on the soft spongy surface, picking the flowers and stowing them in the pitcher plant's leaf full of water, the urge of the collector began to stir in me, and overcoming the fear that the swaying having bog would swallow me, and

overcoming, too, the scruples of taking a plant home to die, I cautiously took my way to an especially strong clump of pitchers. Thrusting my hand in that deep cool rich moss I drew up a good specimen, which contained also one orchid, a tiny white fleshy bulb with no sheath, and white thick prong-like roots, and one narrow grassy leaf.

Back I took them to the cottage and they spent the rest of my stay in a nice white china basin, while each day I debated whether I would be foolish enough to carry them home, where I had a stream they might survive in.

For it would entail a night in a sleeper, a morning in New York, and late afternoon, before home, west of Philadelphia, could be reached.

Collector's urge prevailed. In a neat shoebox in wax paper they journeyed coming forth, the second night perfectly fresh, thanks to air-conditioned trains, though they had a hot time in New York, going with me to the eleventh floor of Rockefeller Center, to see the Gardens of All Nations—we saw no orchids or pine-woods there, though the vegetable garden with its clever scare-crow, gave a feeling of nostalgia.

The stream-side received the Adirondack habitants and they are still happy. Whether the small orchid will survive the freeze and thaw of a Pennsylvania winter is problematical. Meanwhile what is it? Is it *Habenaria psycodes*, or *Plantanthera Bigelovii*, or *P. peramoena*? These two last are listed in my very old Botany, Alphonso Wood's Class Book of Botany. He lists no *Habenaria*, but gives *Psycodes* under *Plantanthera*.

F. E. McILVAINE.

Downingtown, Pa.

Iris tenuis (See page 210.)

Iris tenuis, locally called the Clack-

amas Iris, is found only along the upper waters of the Clackamas and Molalla Rivers in northwestern Oregon. Seen in the woods, it is rather inconspicuous, for there are usually few flowers compared with the wide patches of light green foliage. In places where the sun strikes it for at least a part of the day, the plant flowers more freely.

The leaves which are deciduous, are wider than those of the other northwest irises, except *douglasiana*. The flowers stand erect on very slender stems and are small and white, with a touch of purple and gold. They send out runners under the surface of the ground, and soon increase to large patches, if the soil is light and rich. The same habit continues in cultivation so they should be divided once in two years, to keep the clumps of moderate size and encourage bloom. They can be raised from seed as readily as any of the northwest irises.

A situation in partial shade suits the plant, and a sandy leaf soil is desirable.

DREW SHERRARD.

Oswego, Ore.

Adonis vernalis L. (See page 211.)

It would be a pleasure to say that the photograph was made in my own garden but it came from the rock garden at Kew instead, although if one knew precisely where to turn he probably could have found as good examples here.

They would not be common, however, for this is one of those species that are not much used because their seeds do not come up with enough regularity to make them safe and their plants resent all moving about and division even more.



Crinum "Milk and Wine Lily"

[See page 206]



Drew Sherrard

Iris tenuis

[See page 208]



Michael Carron

Adonis vernalis

[See page 208]

Like most of its fellows this species pushes into growth early in the spring, with shoots that recall the young growth of *Paeonia tenuifolia* on a small scale but green in color, not bronzy. The upper finely divided leaves clothe the stems and make a fine collar for the golden flowers that are clearly indicated in the illustration.

Farrer points out that it comes from limestone country and that lime should be provided in planting it. Perhaps the lack of lime is another reason for its non-success in our commonly more or less acid soils of the East.

Washington, D. C.

Bupthalmum salicifolium L. (See page 213.)

This is a plant that very often looks better in pictures than in gardens but when it does well is quite fine enough to have been waited for. The illustration, which is natural size, shows the quality of the flowers and foliage, and one can easily guess that there is a coarse clump of robust stems behind such a flowering.

In the perennial border where one uses Shasta daisies, heleniums, heliopsis and rudbeckias, this plant would seem quite elegant and would add a valued contrast to its fellows.

On the whole it prefers sun to shade, but in this part of the world, full sun is too much for its best development, and a situation where morning or afternoon shade can be given is more desirable.

As it blooms first in June and continues more or less through the summer it is valuable for that reason also.

Washington, D. C.

Xolisma mariana Rehd. (See page 214.)

If our native stagger-bush were a rare Chinese plant all our plant spe-

cialists would be breaking their pocket-books to get it for their garden. Possibly the fact that it often grows in poor thin woods hides it from their observation and it remains only for the gardener who does his own collecting to discover.

The illustration shows both flowers and fruits at about half natural size. The flowers are the purest of white but their stalks and calyces are varying shades of pinkish cream to pink and give delightful warmth to the inflorescence.

The bushes grow about two feet high hereabouts and spread laterally by underground stems so that each central colony has various outposts. As a rule, they are rather unpleasant to collect as they do not have compact root masses, so that collected plants are usually benefitted by a serious decapitation from which they make almost immediate recovery.

For the drier parts of an ericaceous planting, these should be tried near heaths or heathers or the deciduous azaleas, rather than in the richer ground where one would plant the Japanese azaleas or rhododendrons. Whatever its location elsewhere, hereabouts it is most often found in open woods of oak or pine where the soil is far from rich and where in summer it is dry beyond telling. Such conditions if reproduced in the garden do not always add to the picture, but they should furnish the keynote to the choice of site.

Washington, D. C.

Lunaria annua L. (See page 215.)

Although one more often thinks of this under the more familiar name of *Lunaria biennis* this older name is a very useful reminder that the plant is a winter annual, coming up in autumn as a fine rosette that overwinters in



Lilian A. Guernsey

Bupthalmum salicifolium

[See page 212]



Lilian A. Guernsey

Xolisma mariana

[See page 212]



Lilian A. Guernsey

Lunaria annua

[See page 212]

that stage and rushes up its flowering stalk of dull-purple, sweet-scented flowers the following spring. Although these are quite as handsome as those of the sweet-rocket, they have scant attention as the gardener's whole hope is set on their fruiting.

The green pods are fairly translucent so that one can see the flattened seeds through them, but the gardener cleans them off and leaves the silvery membrane that separates the two valves to dry for winter decoration.

All the gardeners that have reported hereabouts agree that this easy plant is temperamental in that it succeeds greatly or refuses to grow with no middle state. Self-sown seeds often do exceedingly well, while home-gathered seed, stored carefully, may fail to germinate. One year the crop may be luxuriant and the next almost a failure. Apparently vigorous autumn growth and continuous growth in spring in a rich somewhat limey soil are required to make the large specimens that one often sees.

Washington, D. C.

x *Dianthus Winteri* "Meg Gardner"
(See page 217.)

No record has been seen as to what species and varieties of pinks may have gone into the production of x *Dianthus Winteri* but from their flowers one suspects *D. plumarius* and from the occasional development of twisted old stems one suspects the border carnation.

In a country where summers are hot and natural soils not particularly good, the gardener looks with affection upon the many species and forms of dianthus that relish such a combination. Consequently the advent of any new garden race is hailed with anticipation.

x *Dianthus Winteri* forms large tufts of gray and blue-green foliage,

from which arise in May branching stalks with large fragrant flowers, white and various hues of pinks, usually zoned with dark crimson as in Meg Gardner, the variety illustrated. Not all the named sorts have incised margins on the petals, and among those incised some have sharp and some have bluntly incised lobes.

After their first heavy flowering these sorts have a tendency that is almost strong enough to call a recurrent habit of flowering again and again, not in profusion, but quite enough to be worthwhile and in this locality far more than any other strain of garden pinks.

Washington, D. C.

Allium Cuthbertii Small (See page 219.)

Through the kindness of Dr. Edgar T. Wherry this quite handsome flowering onion has lived in the garden for some years and while it has not increased rapidly it has increased regularly and shown vigorous growth.

Since it is described as native to "sandy wood, Coastal Plain, Florida to Alabama and North Carolina," one might question its hardiness to cold. Even after the very severe winters of 1933-34 and 1934-35 there has been no suggestion of tenderness. It is planted in a bed specially prepared so that there are larger parts of sand and peat than of the natural soil. Its neighbors are heaths, heathers, *Viola pedata* and innumerable crocus species. The location has full morning sunlight and broken light through the afternoon.

As in the case with many of the flowering alliums, the foliage amounts to very little. The flowering stems, well over a foot tall, are stiff and bear the good-sized flower heads that are seen in the illustration. The flow-



Lilian A. Guernsey

x Dianthus Winteri, Meg Gardner

[See page 216]

ers are essentially white, but one has the impression of green and white that one gets from snowdrops or snowflakes. As the perianth segments are quite sharply pointed, the flowers have a starrier appearance than shows in many other species.

If one had room for but few alliums, this need not be one, but if one could admit second favorites as well as prime favorites, it would be well worth a place.

Washington, D. C.

Lilies again.

If one reads back through horticultural journals he is impressed by the fact that various plants have had repeated periods of attention and neglect. Among these are lilies.

At the present time there is a definite renewal of interest in these lovely plants as witnessed by the activities of various newly formed committees and projects; among them the Garden Club of Virginia. The American Horticultural Society will welcome from its members comments, brief or long, as to what lilies they have grown and how they behaved in their own gardens. Data as to soil and location are particularly welcome and reports as to the permanence of each planting are especially desired.

Dracocephalum ruschyanum L. (See page 220.)

In our climate where it is quite possible to have an arid month during July this handsome dragonhead is not always happy but when the spring is reasonably cool and slow and summer has enough rains to keep everything moving along, this plant rewards the gardener with really wonderful heads of blue-lavendar that in addition to the beauty of their color have a vel-

vety surface that makes them twice lovely.

Whether a different or a poorer soil mixture would make the shoots start off more strongly and keep more erect through their whole growth is not proven here. Now, too often, they flop and then send up the last erect flowering portions.

When cut the flowers often drop as do those of various salvias, but new flowers develop quickly and the exquisite color is worth the trouble of cleaning up the first dead blooms.

Seeds give vigorous young plants and old plants can be divided at the crown much like any other perennial.

Needless to say, gray-leaved plants set off the blueness of the blue-purple flowers and make a pleasant foil for the foliage.

Washington, D. C.

Callicarpa purpurea Thunb. (See page 221.)

Although this plant is both old and well known in many quarters it is not met with often enough, perhaps for the reason that its spring stages do not suggest the beauty of the plant in its fruiting.

Its slender, more or less fountain-like growth makes a fair-sized bush of rounded outline filled with fine twigs and clothed with essentially yellow-green leaves that look far softer than they are. The corymbs of pinkish flowers that line the axils of the leaves make no show at all but they change quickly to the berries pictured natural size in the illustration, that are remarkable for their pinkish lilac color. These show quite well before the leaves have fallen and even more clearly after frost has taken off the yellowing foliage.

Various suggestions have been made before this as to the usefulness of cut



Lilian A. Guernsey

Allium Cuthbertii

[See page 216]

*Lilian A. Guernsey**Dracocephalum ruschyanum*

[See page 218]



Lilian A. Guernsey

Callicarpa purpurea

[See page 218]

sprays of this plant in combinations with chrysanthemums and in the *Daffodil Yearbook*, Miss Averett has pointed out that its late-leaving habits make it possible to plant bulbs under it with the assurance that they will have a full quota of sunshine before the foliage develops too heavily.

No records have been kept as to how long the berries will keep if dried, but the chief difficulty will come from brittleness and shattering rather than shrivelling. Perhaps readers will supplement this from their experience. In any case the berries should be gathered before serious frosts have turned them brown.

Washington, D. C.

A Study of the Effect of Drouth on Trees.

The 1936 drought is one of the most serious and widespread the nation has ever experienced. Not only have there been untold suffering by the local residents and terrific losses in crops, but other forms of life over considerable areas are showing the effects of abnormally high temperatures and deficient precipitation. Just how serious some of these effects are remains to be seen.

In forestry and plant ecology, droughts are of considerable significance because of their effects on survival, growth, and behavior of trees and shrubs. Some species or individuals may be killed, others suffer severe injury, while still others may show remarkable ability to withstand the most adverse conditions. In times of severe drought, forest plantations suffer severely especially those com-

posed of species not native to the locality or those badly abused as by grazing. In addition many native species that have been slowly invading drier sites or localities may be eliminated over large areas.

As information on drought resistance of trees and shrubs is sadly lacking, the present affords an unusual opportunity to obtain data of outstanding value. Consequently, it is hoped that those who are in a position to do so will take notes on the reaction of various plants to the drought. Such information is not alone of scientific interest but has great practical value in many current operations such as the reforestation program of the CCC, cultural operations in the forest, erosion and flood control, etc.

The Forest Service is undertaking the collection of data on the drought damage. In this it is seeking the aid of botanists, agronomists, foresters, meteorologists, and other interested individuals throughout the drought area. Consequently, anyone with observations on species behavior should communicate them to the Division of Silvics of the Forest Service at Washington, D. C. Data are desired especially on such features as the nature, extent, and character of the damage, the relative resistance of trees growing on different sites, the comparative ability of native and exotic trees to withstand drought and the nature and extent of the damage to stands or to shade or ornamental trees, shrubs, etc. A questionnaire covering these points has been drawn up to aid observers in reporting the effects of the current drought.

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or Secretaries, who do not receive our Autumn Bulletin, which will reach them annually before Oct. 15th, are kindly requested to acquaint us of the fact at their earliest convenience, which will enable us to include them in our mailing list, and will ensure their receiving a copy of the questionnaire in December.

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The American Horticultural Society

INVITES to membership all persons who are interested in the development of a great national society that shall serve as an ever growing center for the dissemination of the common knowledge of the members. There is no requirement for membership other than this and no reward beyond a share in the development of the organization.

For its members the society publishes **THE NATIONAL HORTICULTURAL MAGAZINE**, at the present time a quarterly of increasing importance among the horticultural publications of the day and destined to fill an even larger role as the society grows. It is published during the months of January, April, July and October and is written by and for members. Under the present organization of the society with special committees appointed for the furthering of special plant projects the members will receive advance material on narcissus, tulips, lilies, rock garden plants, conifers, nuts, and rhododendrons. Membership in the society, therefore, brings one the advantages of membership in many societies. In addition to these special projects, the usual garden subjects are covered and particular attention is paid to new or little known plants that are not commonly described elsewhere.

The American Horticultural Society invites not only personal memberships but affiliations with horticultural societies and clubs. To such it offers some special inducements in memberships. Memberships are by the calendar year.

The Annual Meeting of the Society is held in Washington, D. C., and members are invited to attend the special lectures that are given at that time. These are announced to the membership at the time of balloting.

The annual dues are three dollars the year, payable in advance; life membership is one hundred dollars; inquiry as to affiliation should be addressed to the Secretary, Mrs. Eugene Ferry Smith, 821 Washington Loan and Trust Building, Washington, D. C.

